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Irish Standard  
I.S. EN 60644:2009

# Specification for high-voltage fuse-links for motor circuit application (IEC 60644:2009 (EQV))

## I.S. EN 60644:2009

*Incorporating amendments/corrigenda issued since publication:*

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EUROPEAN STANDARD

**EN 60644**

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2009

ICS 29.120.50

Supersedes EN 60644:1993

English version

## **Specification for high-voltage fuse-links for motor circuit application (IEC 60644:2009)**

Spécification relative aux éléments  
de remplacement à haute tension destinés  
à des circuits comprenant des moteurs  
(CEI 60644:2009)

Anforderungen für Hochspannungs-  
Sicherungseinsätze für Motorstromkreise  
(IEC 60644:2009)

This European Standard was approved by CENELEC on 2009-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

# CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: Avenue Marnix 17, B - 1000 Brussels**

**I.S. EN 60644:2009**

EN 60644:2009

- 2 -

**Foreword**

The text of document 32A/267/CDV, future edition 2 of IEC 60644, prepared by SC 32A, High-voltage fuses, of IEC TC 32, Fuses, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60644 on 2009-10-01.

This European Standard supersedes EN 60644:1993.

The main changes with regard to EN 60644:1993 concern the following:

- update of the normative references;
- renewal of the figures.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2010-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2012-10-01

Annex ZA has been added by CENELEC.

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**Endorsement notice**

The text of the International Standard IEC 60644:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60470                      NOTE Harmonized as EN 60470:2000 (not modified).

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**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60282-1	2005	High-voltage fuses - Part 1: Current-limiting fuses	EN 60282-1	2006

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## CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references .....	5
3 Fuse-link time-current characteristics .....	5
4 <i>K</i> factor .....	6
5 Withstand requirements.....	6
6 Withstand tests.....	6
6.1 General.....	6
6.2 Test sequence No. 1 .....	7
6.3 Test sequence No. 2 .....	7
6.4 Interpretation of the test results.....	8
7 Information to be given to the user .....	8
8 Selection of fuse-links for motor circuit applications and correlation of fuse-link characteristics with those of other components of the circuit.....	9
8.1 Selection of fuse-links .....	9
8.2 Co-ordination with other circuit components .....	9
Bibliography.....	12
Figure 1 – Diagrams of the test sequences .....	7
Figure 2 – Determination of <i>K</i> factor for fuse-links of intermediate rating of a homogeneous series.....	8
Figure 3 – Characteristics relating to the protection of a motor circuit .....	11

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### **SPECIFICATION FOR HIGH-VOLTAGE FUSE-LINKS FOR MOTOR CIRCUIT APPLICATIONS**

#### FOREWORD

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International Standard IEC 60644 has been prepared by subcommittee 32A: High voltage fuses, of IEC technical committee 32: Fuses

This second edition cancels and replaces the first edition, published in 1979, and constitutes a technical revision.

The main changes with regard to the previous edition concern the following:

- update of the normative references;
- renewal of the figures.



The text of this standard is based on the following documents:

CDV	Report on voting
32A/267/CDV	32A/270/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## SPECIFICATION FOR HIGH-VOLTAGE FUSE-LINKS FOR MOTOR CIRCUIT APPLICATIONS

### 1 Scope

This standard applies primarily to fuse-links used with motors started direct-on-line on alternating current systems of 50 Hz and 60 Hz.

NOTE When motors are used with assisted starting this specification can also be applied but particular attention should be paid to the selection of the rated current of the fuse-link (see 8.1) and the manufacturer of the fuse-link should preferably be consulted.

Fuse-links according to this specification are intended to withstand normal service conditions and motor starting pulses. They should comply with the requirements of IEC 60282-1.

The purpose of this standard is to standardize time-current characteristics, to formulate pulse withstand requirements regarding testing and to give guidance regarding the selection of fuse-links intended to be used with motors.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60282-1:2005, *High-voltage fuses – Part 1: Current-limiting fuses*

### 3 Fuse-link time-current characteristics

Compared to fuses typically used for distribution system protection, fuses for motor circuit protection should have:

- relatively high melting current (slow operation) in the 10 s region of the pre-arcing time-current characteristic to give maximum withstand against motor starting current;
- relatively low melting current (fast operation) in the region below 0,1 s to give maximum short-circuit protection to associated switching devices, cables and motors and their terminal boxes.

Therefore pre-arcing time-current characteristics of fuse-links for motor circuit applications shall be within the following limits:

$$I_{f10} / I_n \geq 3 \quad \text{for} \quad I_n \leq 100$$

$$I_{f10} / I_n \geq 4 \quad \text{for} \quad I_n > 100$$

$$I_{f0,1} / I_n \leq 20 (I_n / 100)^{0,25} \quad \text{for all current ratings}$$

where

$I_n$  is the numerical value of the current rating, expressed in amperes, of the fuse-link;

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